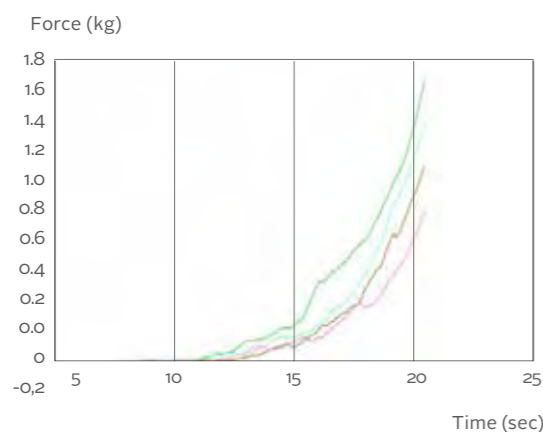


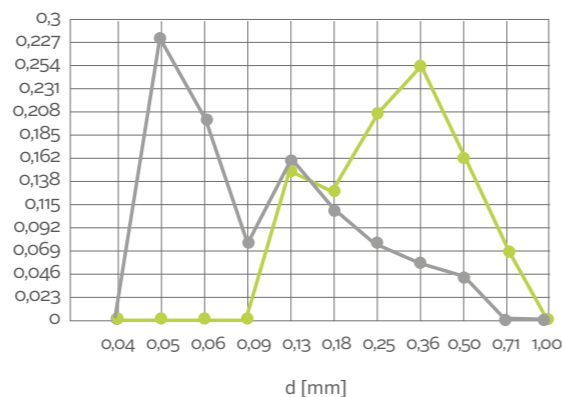
**STEECKER® PRE-EXIST**

Analytical parameters		Dosages		Composition
calcium	15,20%	Dairy cows	100-150 gr/head/day	magnesium sulphate anhydrous, calcium chloride, calcium sulphate, calcium carbonate.
magnesium	9,80%	Sows	3-4 kg/ton of feed	
chlorine	13,00%			<b>Packaging</b> 25 kg bag
sulphur	13,60%			
DCAB [mEq]	-11,912			

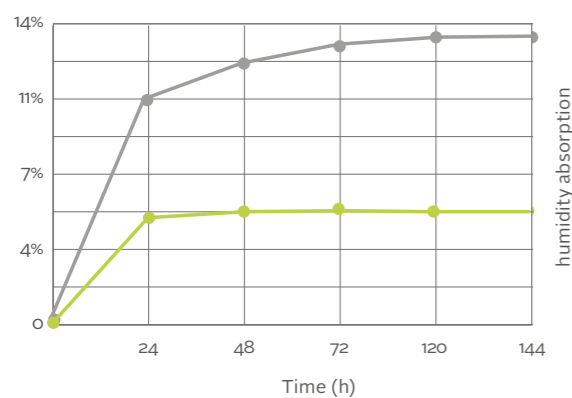
**Compression curve in time Steecker® Pre-Exist**



**Distribution by size**



**Moisture stability Steecker® Pre-Exist**




Anionic salts for feed mill industry

# slow solubilization anionic salts for a high palatability

Steecker® technology enhances the performances which are not provided by compositions. Steecker® technology joins shape characteristics with composition characteristics ("performance") to obtain products with higher quality standards in comparison with powders.

The use of **anionic salts in powder** in the animal feed sector introduces the problem of low flowability. Steecker® granulation technology increases the round shape of the particles and thus concretely improves the flowability and makes easier dosing in comparison with powders.

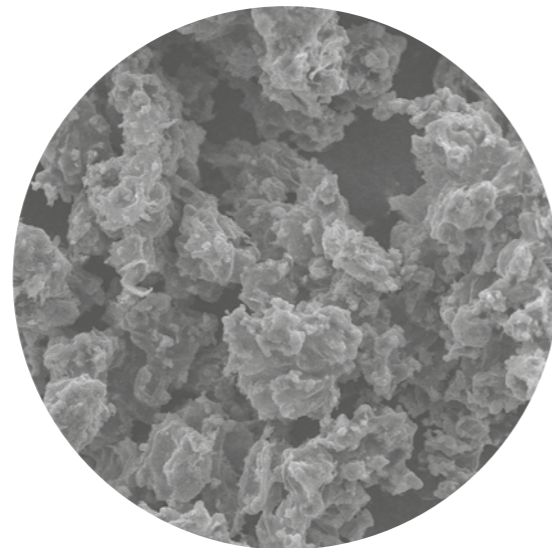
The density of **Steecker® Pre-Exist** granule (compared to an equal volume of powder) reduces the surface area exposed to atmospheric agents such as moisture, thus protecting the active principles from liquescence processes.

Each raw material has its own specific gravity. The diversity of specific gravities is the cause of separation among different components of powder. **Steecker® Pre-Exist** micro granule has one specific gravity because it is a stable and permanent aggregate of diverse particles.

Steecker® reaches high standards of uniform shape and size of granule.

**Steecker® Pre-Exist** micro granules do not disperse dust thanks to their structure and unifying force, so the contact area with a granule is lower than with the equivalent volume of powder.

Electrostatic charging occurs when solids move in relation to the material with which they are in contact. Compared to powder, the volume and density of a **Steecker® Pre-Exist** micro granule present greater resistance to attraction generated by electric charges which are present in the interface of materials (e.g. mixers, augers, etc.). In comparison with powder feedstuff, **Steecker® Pre-Exist** micro granules do not involve inhalation hazards as they are not suspended in the air, whereas fine powder has a high suspension time of small particles with the possibility that the operator could inhale large amounts of the substance.



## High palatability

**Steecker® Pre-Exist** presents a porosity-structure (picture) which enables the entrance of fluids inside the pores but the solubilization of the content occurs in a slower way, thus avoids the problem of poor palatability of the products based on anionic salts because the immediate solubilization in the mouth does not occur.

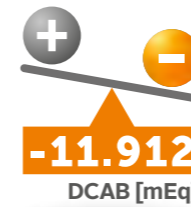
**Dustiness:** measured in accordance with the official UNICHIM MU1998:13 protocol – Work environments (Determination of the inhalable fraction: total amount of dust of aero-dispersed particulate).

**Distribution by size:** it shows the minimum and maximum dimensions of particles. Products with too tiny particles can generate a lot of dust while products with too big particles are not very homogeneous.

**Density:** it indicates the weight of a specific volume of product; there are 2 kinds of densities: bulk density for the just poured product, tapped density for the compacted product.

**Carr Index, Hausner ratio:** they are two values obtained by the comparison of the bulk and tapped densities. If bulk and tapped values are similar it means that the product is not likely to cake.

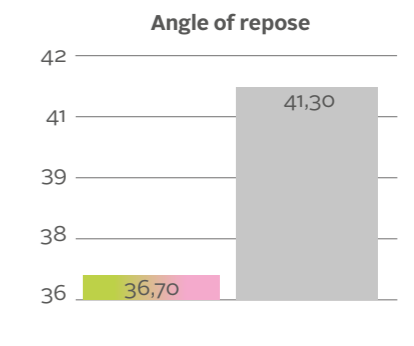
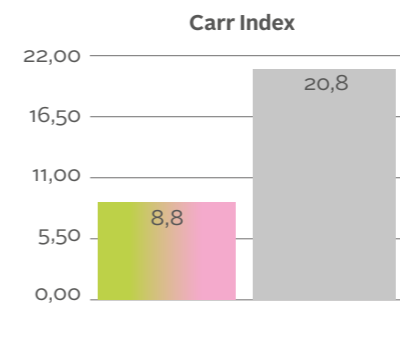
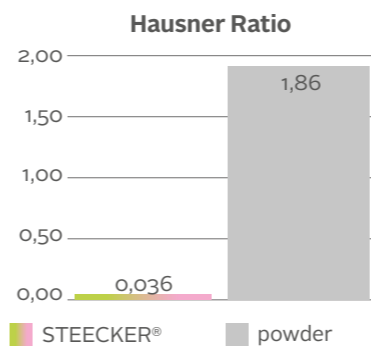
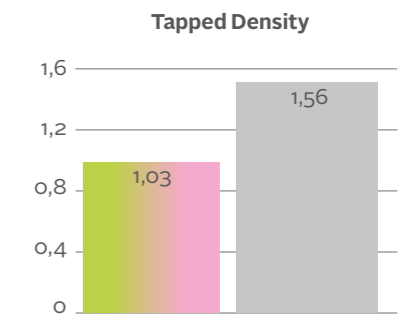
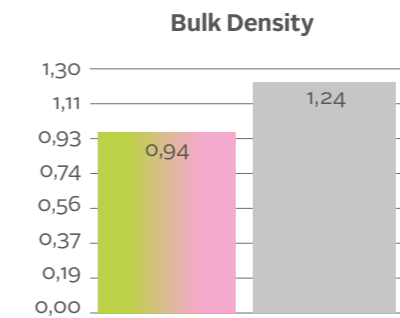
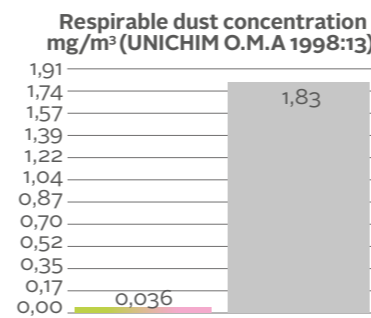
**Angle of repose:** it represents the angle between the side of a heap of product and the surface on which it is poured (a low value of the angle of repose indicates high flowability).



**Steecker® Pre-Exist** is a granular anionic mineral feed, to be used at low dosage due to the small percentage of carrier. It is specifically designed for the dry phase of dairy cows, for the calving preparation phase of heifers. Its components are able to produce a controlled metabolic acidification and to activate the process to use the endogenous calcium to reach the highest availability of calcium at calving.

The same metabolic way of cows occurs in sows, the use of **Steecker® Pre-Exist** in gestation and lactation sows can control the electrolytic balance at different level in the feed with important benefits regarding availability of calcium at farrowing, milk production, feed intake and control of metabolic postpartum diseases like ketosis.

CHARACTERIZATION OF STEECKER® PRE-EXIST				
Parameters	Unit of measure	Steecker® Pre-Exist	Anionic salts in powder	Standards
Dustiness	mg / m <sup>3</sup>	0,036	1,83	UNICHIM MU1998:13
Bulk density	g / cm <sup>3</sup>	0,94	1,24	ASTM D7481-09
Tapped density	g / cm <sup>3</sup>	1,03	1,56	ASTM D7481-09
Carr Index	absolute value	8,80	20,80	ASTM D6363-99
Hausner Ratio	absolute value	1,10	1,26	ASTM D6363-99
Angle of repose	degrees	36,70°	41,30°	ASTM D6363-99



STANDARD REFERENCE VALUES			
Hausner Ratio	Carr Index	Angle of repose	Evaluation
1,00 – 1,11	<10	25-30	Excellent
1,12 – 1,18	11-15	31-35	Good
1,19 – 1,25	16-20	36-40	Fair
1,26 – 1,34	21-25	41-45	Acceptable
1,35 – 1,45	26-31	46-55	Poor
1,46 – 1,59	32-37	56-65	Very poor
>1,60	>38	>66	Very very poor

- Better flowability and manageability
- Less humidity absorption
- Single specific gravity
- Uniform granule size
- Less skin contact
- Less electrostatic charge
- Lack of suspended powders